

cannot fail to arrive at this conclusion, that the several distinct ovaries, each formed of a single carpel united by its margins without any inflexion, which margins being on the ventral side and ovuligerous, form there a longitudinal parietal placentation, —characters that belong to the *Winteraceæ*,—unquestionably place that family in the class *Polycarpicæ*. On the other hand, we find in the *Canellaceæ* similar carpels; but instead of being distinct, they are united into one compound ovary by the simple junction of their placentiferous margins, thus forming a unilocular ovarium with compound parietal placentation: this Order must therefore come within the limit of the *Rhæades* of Endlicher, where we find the carpels similarly constituted. Notwithstanding this separation into different classes, it is evident, from the extremely close affinity existing between the two families, that they ought to be in juxtaposition in any linear arrangement; but I will again refer to this subject when I come to discuss the affinities of the *Winteraceæ*.

XXXII.—*Observations on Dr. Hallowell's Paper on Urodele Batrachians, and Trigonophrys, &c., in the 'Journal of the Academy of Natural Sciences of Philadelphia.'* By Dr. JOHN EDWARD GRAY, F.R.S., V.P.Z.S., P. Ent. Soc. &c.

IN the third part of the third volume of the new series of the 'Journal of the Academy of Natural Sciences of Philadelphia,' for February 1858, Dr. Edward Hallowell has published a paper "on the Caducibranchiate Urodele Batrachians," in which he divides these animals into nine subfamilies.

The paper, which is very valuable as regards the accounts of the North American species of the Order, and of the European specimens in the Bonaparte Collection, which has come into the possession of the Academy, is not preceded by any observations, so that its object and intention are not explained. It does not give any account of what has been done on the subject by his predecessors in the same field. Perhaps the author thinks that the less he says on this head the better; or perhaps he may boldly say, like another naturalist on a similar occasion, "I have had no predecessors."

The paper at once commences with the characters of the nine subfamilies; and, as they have no reference to any other authors except in one case, I take it for granted we are to suppose that they are the families suggested and characterized by the author. The exception to which I have above referred is thus marked:— "Ellipsiglossidæ, D. & B. = Molgidæ, Merrem." Now, it is to be observed, that neither of the authors so referred to have

families ending in *idæ*,—so that the references are evidently incorrect. Duméril and Bibron use *Ellipsiglossus* as a genus, and Merrem uses *Molge* as the name of the genus which Laurenti had called *Triton*, and which contains all the Urodele Batrachians.

On examining the nine subfamilies characterized by Dr. Hallowell, I find them to be just nine of the tribes or sections of tribes into which I had separated the three families into which I had divided the Order in my Catalogue of these animals published in 1850,—a catalogue well known to Dr. Hallowell, as he quotes it among the synonyma of the species, and criticises some of the observations in it in his remarks appended to the species. Dr. Hallowell's subfamilies are established on the same characters that I used to separate the families and tribes, the characters being only given in a few more words, as if to fit them for a work in quarto. I will now give an abstract, in parallel columns, of Dr. Hallowell's and my arrangement:—

Gray, Catalogue, 1850.	Dr. Hallowell's Paper, 1858.
Fam. I. <i>Salumandridæ</i> .	
Tribe 1. <i>Salamandrina, a*</i> , identical with I.	<i>Salamandridæ</i> §.
1. <i>Salamandra</i>	= <i>Salamandra</i> .
Tribe 1. <i>Salamandrina, a**</i>	= III. <i>Pleurodelidæ</i> .
2. <i>Pleurodeles</i>	= <i>Pleurodeles</i> .
Tribe 1. <i>Salamandrina, b</i> .	= VII. <i>Tritonidæ</i> .
<i>Triton</i>	= <i>Triton</i> .
<i>Notophthalmus</i>	= <i>Diemyctylus, Raf.</i>
<i>Euproctus</i>	= <i>Euproctus</i> .
<i>Cynops</i>	= <i>Triton, sp.</i>
<i>Taricha</i>	= <i>Taricha</i> .
<i>Bradybates</i>	= <i>Pleurodeles junior?</i>
<i>Lophinus</i>	= <i>Triton, sp.</i>
<i>Ommotriton</i>	= <i>Triton, sp.</i>
(<i>Sieboldia</i> in <i>Protonopsidæ</i>)	= <i>Tritomegas</i> .
Tribe 2. <i>Serianotina</i>	= II. <i>Serianotidæ</i> .
<i>Serianota</i>	= <i>Serianota, sp.</i>
Fam. II. <i>Molgidæ</i>	= VIII. <i>Ellipsiglossidæ</i> .
<i>Hynobius</i> and <i>Molge</i>	= <i>Ellipsiglossus</i> .
Fam. III. <i>Plethodontidæ</i> .	
Tribe A. <i>Ambystomina</i>	= VI. <i>Ambystomidæ</i> .
1. <i>Onychodactylus</i>	= <i>Onychodactylus</i> .
2. <i>Heterotriton</i>	= <i>Ambystoma, sp.</i>
3. <i>Xiphonura</i> }	= { <i>Ambystoma, sp.</i>
4. <i>Ambystoma</i> }	
Tribe B. <i>Plethodontina</i>	= IV. <i>Plethodontidæ</i> .
5. <i>Plethodon</i>	= <i>Plethodon</i> .
(<i>Taricha?</i> sp.)	= <i>Aneides</i> .

§ In a paper read at the Zoological Society on the 9th of March, 1858, I divided this family into three, viz. *Salamandridæ*, *Pleurodelidæ*, and *Serianotidæ*, but on very different characters from those used by Dr. Hallowell, and containing different genera to the families he has so named.

Gray, Catalogue, 1850.	=	Dr. Hallowell's Paper, 1858.
Tribe C. <i>Desmognathina</i>	=	IX. <i>Hemidactylidæ</i> .
6. <i>Desmognathus</i> , Baird	=	<i>Plethodon</i> , sp.
7. <i>Hemidactylum</i>	=	<i>Hemidactylum</i> .
Tribe D. <i>Ædipina</i>	=	V. <i>Bolitoglossidæ</i> .
8. <i>Batrachoseps</i>	=	<i>Batrachoseps</i> .
9. <i>Spelerpes</i>	=	<i>Spelerpes</i> .
<i>Pseudotriton</i>	=	<i>Pseudotriton</i> .
10. <i>Geotriton</i>	=	<i>Geotriton</i> .
11. <i>Ædipus</i> , from Mexico	}	Not noticed by Dr. Hallowell.
Tribe E. <i>Ensatinina</i>	}	
<i>Ensatina</i> , from California	}	

I think the above list establishes beyond a doubt the identity of my tribes and Dr. Hallowell's subfamilies.

I know that some authors, who are great sticklers for the synonyma of genera, and profess to be very anxious to give the first establisher of the genus the honour of its establishment, do not quote the synonyma of the families and other larger groups; but as it certainly requires a larger power of analysis to form good natural groups of genera than to form genera, especially since it has become the habit to make almost every species a genus, it is certainly more important to the history of science, and but justice to the higher class of scientific labourers, that the history of the groups should be shortly and distinctly given,—more especially as the faculty of success in characterizing such groups appears to be a rare talent possessed by few. It is the possession of this talent that gives the high character to the works of Jussieu, Lamarck, Brown, and Macleay.

Dr. Hallowell, I suppose from not having seen the animal, or probably even a figure of it, places the large Japan "Salamander," *Tritomegas Sieboldi*, in *Tritonidæ*, between *Euproctus* and *Taricha*, to which it has not the most distant relation either in external form, form of tongue, or position of teeth; this genus, on the other hand, is so nearly allied in all these characters to the American genus *Protonopsis* as to be with difficulty separated from it.

It is much to be regretted that authors like Dr. Hallowell should not quote others correctly; thus he states, "Gray observes, that it (*Triton nycthemerus*) is perhaps a young of *T. marmoratus* or *Triton cristatus*." I have not given such an opinion, as I have never seen the animal; but in page 22 of the Catalogue I quote M. Bonaparte's opinion thus:—"Is perhaps the young of *T. marmorata* or *T. cristata* (Bonap. Amph. Eur)."

In the same Part of the Journal of the Academy Dr. Hallowell describes and figures as a new genus and species, a Frog, in the Museum of the Academy, under the name of *Trigonophrys*

rugiceps; but there can be no doubt, from the figure and description, that it is the *Uperodon ornatum* of Mr. Bell, which is figured in the Zoology of the Beagle, p. 50. t. 20. f. 6.

Dr. Hallowell, in a paper in the same volume, describes and figures some Snakes as new, which Dr. Gunther informs me are well-known species, described many years ago, thus:—

Zamenis tricolor, Hallow. = *Herpetodryas margaritiferus*, Schleg.
Elapoidis fasciatus, Hallow. = *Streptophorus* Sebaë, Dum. & Bibr.

XXXIII.—*On the Relation of the Raphe to the Coats of the Vegetable Ovule.* By ARTHUR HENFREY, F.R.S. &c.

IN the last number of the 'Annals' appeared a paper by Mr. Miers explanatory of his views on the subject named in the heading of this note. A clear statement of opinion is most valuable for the settlement of debated questions; and the setting-out therein of the premises on which all the reasoning depends, is just what is required for the decision of the value of the arguments in the present case.

These premises appear to us open to adverse criticism, taking away the principal grounds of the subsequent arguments. We will consider them *seriatim*, as laid down at pages 276–8.

1. That "vegetable growth in all its stages is regulated by the ordinary laws of mechanical action," is incorrect if taken without qualification, since all the *peculiar* phænomena of organic development are indications of the action of a special force modifying the effects of simple mechanical laws; but this question has no important bearing in the present case.

2. It is by no means true that every tunic of an ovule is formed of three elementary parts, *epiderm*, *mesoderm*, and *endoderm*. No such distinction of parts occurs in the ovules of *Orchis* and many other plants, where the ovules are composed of comparatively small quantities of cells.

3. Communication of vessels can only take place between one tunic and another at points where they are *organically continuous*.

4. The organic communication of the first and second tunics, *testa*, and *tegmen*, is *usually* confined to the vicinity of the *chalaza* or *ganglyode*.

5. In erect ovules the *chalaza* is, of course, contiguous to the *hilum*.

6. In anatropous ovules the *chalaza* is removed from the vicinity of the *hilum*; but the inversion of the ovule takes place by a *one-sided development of the tunics of the ovule*,—of the single coat where only one exists, of the *outer coat* where two exist; and the cord of vessels lying in what is called the *raphe* is organically